Space Weather Forecast

Issued on Monday, 11 March 2024 at 13:10 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

Space Weather Forecast Headline: Slight chance of Minor Geomagnetic Storms, especially 11 March due to CME (coronal mass ejection) arrivals or fast solar wind connections. Chance of Moderate activity throughout.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Moderate with a Moderate class flare observed emanating from a large and complex region in the southwest quadrant. This Moderate flare has been followed by a series of Common-class flares from the same region. There are five sunspot regions on the visible disc, with the remaining four regions all small or weakening.

A partial halo CME, which followed the Moderate flare, is currently undergoing analysis for any Earth-directed component - pending analysis.

Solar Wind / Geomagnetic Activity: Solar wind speeds were at slightly elevated levels due to the effects of a declining fast solar wind, which have declined to background levels. Total magnetic field strength and the north-south component of the magnetic field were weak. Geomagnetic activity has been Quiet throughout.

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: There is a chance of Moderate activity flaring mainly from AR3599 which will remain on the visible disc through much of the forecast period.

Solar Wind / Geomagnetic Activity: A CME which left the Sun on 07 March may arrive at Earth on 11 March, but with low confidence. A further potential Earth-directed CME, which is currently being analysed, could affect Earth by the end of the period. The fast solar wind is expected to continue to wane, with a further weak fast solar wind possibly connecting on 11 March.

Geomagnetic activity is expected to be Quiet to Unsettled. There is a chance of Active and slight chance of G1/Minor Storm intervals from either the CME arrivals or the possible onset of the fast solar wind on 11 March. There is lower confidence of Active or G1/Minor Storm intervals towards the end of the period due to the as yet unanalysed CME from 10 March.

Energetic Particles / Solar Radiation: No solar radiation storms are expected.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	20	5	5	5
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	Yes	30	30	30	30
Very Active	R3 to R5 X	No	10	10	10	10

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	10	10	10	10
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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